

CLAIMS

1. A battery comprising:

an electrode assembly (3) that consists of a positive
5 electrode plate and a negative electrode plate, and a separator
wound or laminated together, core materials of the positive and
negative electrode plates being bared respectively at either end;

a bottomed cylindrical outer case (2) having a bottom being
connected to either end face of the electrode assembly (3) to
10 serve as a battery terminal;

electrolyte being impregnated in the electrode assembly
(3); and

a lid (4) connected to the other end face of the electrode
assembly (3) and fixedly attached to the outer case (2) with
15 sealing means and insulation means interposed therebetween,

wherein the lid (4) includes a connecting part (8) in one
piece therewith that engages with and connects a bottom part of
the outer case (2) of another battery (1) to be connected, a hole
(9) for pouring the electrolyte into the battery, and safety means
20 for releasing gas in response to a build-up of internal pressure.

2. A battery comprising:

an electrode assembly (3) that consists of a positive
electrode plate and a negative electrode plate, and a separator
25 wound or laminated together, core materials of the positive and
negative electrode plates being bared respectively at either end;

a bottomed cylindrical outer case (2) having a bottom being

connected to either end face of the electrode assembly (3) to serve as a battery terminal;

electrolyte being impregnated in the electrode assembly (3); and

5 a lid (4) connected to the other end face of the electrode assembly (3) and fixedly attached to the outer case (2) with sealing means and insulation means interposed therebetween,

wherein the lid (4) includes a hole (9) for pouring the electrolyte into the battery and safety means for releasing gas
10 in response to an increasing of internal pressure, and that the lid (4) is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly (3) so as to double as a current collector plate.

15 3. The battery according to claim 1, wherein the lid (4) is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly (3) so as to double as a current collector plate.

20 4. The battery according to claim 2 or 3, wherein the lid (4) is provided with a projection (4a) protruding to the inside of the outer case (2), and is welded to the bared portion of the core material of the electrode plate of the electrode assembly (3) with the projection (4a) making tight contact therewith.

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5. The battery according to claim 1 or 2, wherein the outer case (2) and the lid (4) are joined together by a caulking process

performed to the open end of the outer case (2) and a cylindrical portion (6, 8) continuous with the outer periphery of the lid (4) with a gasket (12) interposed therebetween.

5 6. The battery according to claim 1 or 2, wherein the safety means is formed as a continuous or discontinuous cut (11) in the lid (4).

10 7. The battery according to claim 1 or 2, wherein a current collector plate (5) is welded to the bared portion of the core material of one of the electrode plates of the electrode assembly (3), and after placing the electrode assembly (3) inside the outer case (2), the current collector plate (5) is welded to the bottom of the outer case (2).

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 8. The battery according to claim 1 or 2, wherein the outer case (2) is provided with an inwardly protruding projection (2a), which is welded to the bared portion of the core material of the electrode plate of the electrode assembly (3) in the outer case
20 (2) in tight contact therewith.

 9. The battery according to claim 1 or 2, wherein the lid (4) is formed of a clad plate (14) consisting of a plate material that is resistant to the electrolyte on one side facing the outer
25 case (2) and a plate material that is a same or similar material of the outer case (2) on the other side.

10. A battery pack of a plurality of the batteries (1) according to claim 1 or 3, the bottom of the outer case (2) of one battery (1) being fitted into the connecting part (8) of the lid (4) of the other battery (1) and their mating parts being
5 welded together.